

This is a first Draft of this essay sources are not inline cited however, they are links with relevant material at the bottom. This is a work in progress however, I felt the ideas were of significant importance to open debate. I also have problems writing so I apologize if the style or structure is not what you are accustomed to. I

Thank you,

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Abstract

Sparse Distributed Representation as function of Pattern prediction in the cerebral cortex when relating to brain neurogenesis as a function of movement and reward system. Related disease Alzheimer's.

The brain predicts patterns by creating synaptic relations in your mind, as your brain becomes accustomed to a pattern cortex activity decreases as automatic responses increase due to the frequency of the pattern and associated behavior. This means if the brain does not see frequent pattern changes it begins to assume that there is no need for its function. (Use it or lose it). The only animals that do detect pattern changes and adjust behavior in relation to it are animals without a brain.

This in humans can possibly predict Alzheimer's and other neurological diseases. As the brain's main function is related to movement and movement related process, a feedback of stimuli and appropriate response. When no new patterns are detected brain neurogenesis ceases.

In individuals already with sedentary life styles the brain will attempt a few adaptations, 1. Increase disorder to continue pattern detections, (so messiness, and randomization in living, working area) 2. Create urge to go outside as movement automatically alters patterns to some degree and can improve brain neurogenesis. 3. Virtual movement- this can be done through lucid dreams or video games. 4. Cleaning disorder, the brain submits to the lack of movement begins to create an even more predictable environment, this ultra-neatness facilitates the reduction of cortex activity. (You don't need active memory if everything is always in the same place)

Possible treatments- For advanced cases of brain atrophy you can use dopamine receptors triggers reward mechanism for behavior that can be used to trigger neurogenesis. This requires first putting the individual through dopamine withdrawal and then using "orange juice or other similar food in very small doses 10ml, for a reward(the sugar in the juice will create a baseline dopamine response, this needs to be low in order for relative pattern creation if dose is too high no new patterns will be formed." for recognizing patterns.

A simple way to achieve would be where's Waldo game where the patient is asked to find the character and then receives the reward. Other treatments would include large scale mazes, and threat/reward systems that would cause the brain to trigger neurogenesis and rebuild pattern recognition functions.

Another way is to have patient begin entering complex new movements in which he is told that it is significantly important for his survival. The brain function a purpose basis, our cognitive process can

enter a temporary state of improvement however, if this behavior shows no purpose to acquire biological needs the reward system terminates and improvement ceases.

Needs are defined as resources, social acceptance into a pack, mating, survival and home (predictable location for sleep purposes, {why vacuums or other repetitive sounds put babies to sleep over time}).

1. Burk D, Ingram JN, Franklin DW, Shadlen MN, Wolpert DM (2014), "Motor effort alters changes of mind in sensorimotor decision making." *PLoS One* 9(3):e92681

2. Berniker M, Franklin DW, Flanagan JR, Wolpert DM, Kording K (2014), "Motor learning of novel dynamics is not represented in a single global coordinate system: evaluation of mixed coordinate representations and local learning." *J Neurophysiol* 111(6):1165-82

3. Mutual Emotion-Cognition Dynamics by Mikhail I. Rabinovich; Mehmet K. Muezzinoglu
<http://archive.org/details/arxiv-0909.1144>

4. SPARSE DISTRIBUTED REPRESENTATIONS IN PERCEPTUAL AND MEMORY SYSTEMS IN THE BRAIN.
http://www.tech.plym.ac.uk/soc/staff/guidbugm/ncws2001/ontheweb/1282_Rolls.pdf